



PACIFIC REGION



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I wish could have published this a little earlier in the winter season, but the following is relevant at all times of the year on wet pavement. Wally

Hydroplaning

Most of us have heard of hydroplaning for for about as long as we can remember. But what do we really understand about it. Read on.

Every vehicle we operate depends on friction between the tires and the road surface. When we change direction or speed and when water comes between the tires and the road, friction may be reduced to the extent that the tires may slip, and the driver may lose control. The same principles apply to all vehicles including motorcycles, cars or trucks and even aircraft with landing gear. (You seaplane pilots work with this all of the time).

The grooves of a rubber tire are designed to disperse water from beneath the tire, giving us good friction even in wet conditions. Hydroplaning usually will occur when a tire encounters more water than it can dissipate. Water pressure in front of the wheel forces a wedge of water under the leading edge of the tire, causing it to lift from the road. Now, you are water skiing, This makes the tire skate on a sheet of water with little, if any, direct road contact, and you are no longer in control of the vehicle. If more than one tire hydroplanes, the vehicle can lose directional control and slide until you hit something, or slows enough that one or more tires contact the road again and both friction and control is regained.

Vehicle control factors

Included are:

1. Speed, acceleration, braking, and steering
2. Smooth or worn tires can hydroplane more easily for lack of tread depth.
3. Tire pressure. Underinflation can cause a tire to deflect inward, raising the tire center and preventing the tread from clearing water.
4. Shape and tread style. Tires that present the highest risk are small in diameter and wide.

Staying with the manufactures original tire size is usually the safest.

5. **Vehicle weight.** More weight on a properly inflated tire lengthens the contact patch, improving its aspect ratio. Weight can have the opposite effect if the tire is underinflated.

6. **Vehicle type.**

Combination vehicles like semi-trailers are more likely to experience uneven hydroplaning caused by uneven weight distribution. An unloaded trailer will hydroplane sooner than the cab pulling it. Pickups towing RVs present similar problems.

Several formulas have been presented to ascertain hydroplaning speeds for specific vehicles/loads, but most printed resources on the subject agree that there is no precise equation to determine the speed at which a vehicle will hydroplane. Existing efforts have derived rules of thumb from empirical testing. In general, cars hydroplane at speeds above 45 MPH.

Our vehicles. Cars & Trucks

What the driver feels when a vehicle hydroplanes depends on which wheels have lost traction and the direction of travel.

If the vehicle is traveling straight, it may begin to feel slightly loose. If there was a high degree of road feel in normal conditions, it may suddenly diminish. Small correctional control inputs start to have no effect.

If the drive wheels hydroplane, there may be a sudden audible rise in engine RPM and indicated speed as they begin to spin, as if you were on ice. In a broad highway turn, if the front wheels lose traction, the car may suddenly begin to drift towards the outside of the bend. If the rear wheels lose traction, the back of the car should begin to skid out sideways into a skid. If all four wheels hydroplane at once, the car will slide in a straight line, again towards the outside of the bend if in a turn. When any or all of the wheels regain traction, there may be a sudden jerk in whatever direction that wheel is pointed. Watch out, or you may lose it again!